

CLAIMS

1. A soundproof thermal shield (3), particularly for motor vehicles, comprising a support (4) made from aluminium, at least one noise-absorbing layer (6), and a thermal covering (7) made from aluminium, **characterized in that** the at least one noise-absorbing layer (6) is created from multiple plies (12) of knitted aluminium fabric which are compressed to create a permeable mat (10).
2. The thermal shield according to claim 1, **characterised in that** the mat (10) has a microporous structure with a plurality of narrow, branched channels (11).
3. The thermal shield according to claim 1 or 2, **characterised in that** the mat (10) has a thickness in the range from 0.5 to 10 mm.
4. The thermal shield according to any of claims 1 to 3, **characterised in that** the mat (10) has a weight per unit area in the range of 8 to 15 g/dm<sup>2</sup>.
5. The thermal shield according to any of claims 1 to 3, **characterised in that** the mat (10) is created from at least 5 superimposed plies (12) of knitted aluminium fabric.
6. The thermal shield according to any of claims 1 to 5, **characterised in that** the knitted aluminium fabric is in the form of a single-thread knitted fabric.

7. The thermal shield according to any of claims 1 to 6,  
**characterised in that**  
the knitted aluminium fabric is constructed such that the average distance (a) between two consecutive stitch wales is greater than the average distance (b) between the two legs (15, 16) of a stitch.
8. The thermal shield according to any of claims 1 to 7,  
**characterised in that**  
the knitted aluminium fabric has stitch wales and/or stitch rows of varying width.
9. The thermal shield according to any of claims 1 to 8,  
**characterised in that**  
the support (4) is perforated or created in the form of a mesh.
10. The thermal shield according to any of claims 1 to 9,  
**characterised in that**  
the support (4) has an exposed side with a plurality of noise pass-through apertures (5) the diameter of which is less or equal to 3 mm.
11. The thermal shield according to any of claims 1 to 10,  
**characterised in that**  
the support (4) has an exposed side with a plurality of noise pass-through apertures (5) the diameter of which is in the range from 0.1 to 1.9 mm, up to 24 noise pass-through apertures (5) per cm<sup>2</sup> being arranged thereon.
12. The thermal shield according to any of claims 1 to 11,  
**characterised in that**  
the support (4) has a thickness from 0.5 to 0.8 mm.
13. The thermal shield according to any of claims 1 to 11,  
**characterised in that**  
the noise-absorbing layer (6) representing the mat (10) has a thickness in the range of 0.5 to 10 mm.
14. The thermal shield according to any of claims 1 to 13,  
**characterised in that**

the thermal covering (7) is made from aluminium foil.

15. The thermal shield according to any of claims 1 to 14,  
**characterized in that**  
the thermal covering (7) is microperforated.
16. The thermal shield according to any of claims 1 to 5,  
**characterized in that**  
the support (4) and/or the thermal covering (7) are profiled.
17. The thermal shield according to any of claims 1 to 16,  
**characterized in that**  
the support has an exposed surface which is essentially flat.
18. The thermal shield according to any of claims 1 to 17,  
**characterized in that**  
a spacer (20, 20'') is arranged between the support (4) and the noise  
absorption layer (6) and/or between the noise absorption layer (6')  
and the thermal covering (7).
19. The thermal shield according to any of claims 1 to 18,  
**characterised in that**  
at least two noise absorption layers (6, 6') are present, a spacer  
(20') being arranged therebetween.
20. The thermal shield according to either of claims 18 or 19,  
**characterized in that**  
the spacer is made from a profiled aluminium foil.